What is claimed is:

1. A periodic-pattern suppression method of reducing a spatial frequency component which forms a periodic pattern contained in an original image signal, said method comprising the steps of:

transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain; and

reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a frequency of said periodic pattern in only the vicinity of an array direction of said periodic pattern.

2. A periodic-pattern suppression method of reducing a spatial frequency component resulting from a stationary grid, contained in an original image signal photographed using said stationary grid, said method comprising the steps of:

transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain; and

reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a grid array frequency of said stationary grid in only the vicinity of a grid array direction of said stationary grid.

3. The periodic-pattern suppression method as set forth

in claim 2, wherein

said transforming step obtains said plurality of transformed image signals by applying two-dimensional wavelet transformation to said original image signal by the use of a low-pass filter which splits a band so that its response at a frequency greater than the spatial frequency of said stationary grid becomes approximately zero; and

said reducing step further applies a process of reducing a component less than a predetermined frequency and then performs inverse wavelet transformation, with respect to a signal of said transformed image signals which contains a spatial frequency component corresponding to said grid array frequency.

4. The periodic-pattern suppression method as set forth in claim 3, wherein said reducing step reduces a component less than said predetermined frequency, by recursively and repeatedly applying one-dimensional wavelet transformation to the transformed image signal, containing a spatial frequency component corresponding to said grid array frequency, in a grid array direction of said stationary grid by a predetermined number of times by the use of a predetermined band splitting filter, then making zero transform coefficients of a low frequency image signal of a plurality of image signals obtained by said one-dimensional wavelet transformation, and applying inverse one-dimensional wavelet transformation.

5. The periodic-pattern suppression method as set forth in claim 3, wherein said reducing step calculates powers of

said plurality of transformed image signals, judges the grid length direction of said stationary grid, based on whether or not each said calculated power is greater than a predetermined threshold value, and applies said process of reducing a component less than a predetermined frequency, based on the result of judgement.

6. The periodic-pattern suppression method as set forth in claim 4, wherein said reducing step calculates powers of said plurality of transformed image signals, judges the grid length direction of said stationary grid, based on whether or not each said calculated power is greater than a predetermined threshold value, and applies said process of reducing a component less than a predetermined frequency, based on the result of judgement.

7. The periodic-pattern suppression method as set forth in claim 3, wherein each stationary grid to be used is subjected to said reducing step.

8. The periodic-pattern suppression method as set forth in claim 4, wherein each stationary grid to be used is subjected to said reducing step.

9. The periodic-pattern suppression method as set forth in claim 2, wherein

said transforming step obtains said plurality of transformed image signals by applying one-dimensional wavelet transformation to said original image signal in the grid length direction of said stationary grid by the use of a predetermined band splitting filter; and

said reducing step further applies a process of reducing

a component less than a predetermined frequency and then performs inverse wavelet transformation, with respect to a low frequency image signal of said transformed image signals which contains a spatial frequency component corresponding to the grid array frequency of said stationary grid.

10. The periodic-pattern suppression method as set forth in claim 9, wherein each stationary grid to be used is subjected to said transforming step and said reducing step.

11. A periodic-pattern suppression unit for reducing a spatial frequency component which forms a periodic pattern contained in an original image signal, said unit comprising the steps of:

image signal transformation means for transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain; and

periodic-pattern-component suppression means for reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a frequency of said periodic pattern in only the vicinity of an array direction of said periodic pattern.

12. A periodic-pattern suppression unit for reducing a spatial frequency component resulting from a stationary grid, contained in an original image signal photographed using said stationary grid, said unit comprising:

image signal transforming means for transforming said original image signal, represented in a real space domain, into a plurality of transformed image signals which can be handled in a frequency domain; and

stationary grid-component suppressing means for reducing a transformed image signal of said transformed image signals which has a desired frequency range containing a spatial frequency component corresponding to at least a grid array frequency of said stationary grid in only the vicinity of a grid array direction of said stationary grid.

13. The periodic-pattern suppression unit as set forth in claim 12, wherein

said image signal transforming means obtains said plurality of transformed image signals by applying two-dimensional wavelet transformation to said original image signal by the use of a low-pass filter which splits a band so that its response at a frequency greater than the spatial frequency of said stationary grid becomes approximately zero; and

said stationary grid-component suppressing means further applies a process of reducing a component less than a predetermined frequency and then performs inverse wavelet transformation, with respect to an image signal of said transformed image signals which contains a spatial frequency component corresponding to the grid array frequency of said stationary grid.

14. The periodic-pattern suppression unit as set forth in claim 13, wherein said stationary grid-component

suppressing means reduces a component less than said predetermined frequency, by recursively and repeatedly applying one-dimensional wavelet transformation to the transformed image signal, containing a spatial frequency component corresponding to said grid array frequency, in a grid array direction of said stationary grid by a predetermined number of times by the use of a predetermined band splitting filter, then making zero transform coefficients of a low frequency image signal of a plurality of image signals obtained by said one-dimensional wavelet transformation, and applying inverse one-dimensional wavelet transformation.

15. The periodic-pattern suppression unit as set forth in claim 13, further comprising stationary grid-direction judging means for calculating powers of said plurality of transformed image signals and judging the grid length direction of said stationary grid, based on whether or not each said calculated power is greater than a predetermined threshold value;

wherein said stationary grid-direction judging means applies said process of reducing a component less than a predetermined frequency, based on the judgement made by said stationary grid-direction judging means.

16. The periodic-pattern suppression unit as set forth in claim 14, further comprising stationary grid-direction judging means for calculating powers of said plurality of transformed image signals and judging the grid length direction of said stationary grid, based on whether or not each said calculated power is greater than a predetermined threshold value;

~~wherein said stationary grid-direction judging means~~ applies said process of reducing a component less than a predetermined frequency, based on the judgement made by said stationary grid-direction judging means.

17. The periodic-pattern suppression unit as set forth in claim 13, wherein said stationary grid-component suppressing means applies said process of reducing a component less than a predetermined frequency, to each stationary grid to be used.

18. The periodic-pattern suppression unit as set forth in claim 14, wherein said stationary grid-component suppressing means applies said process of reducing a component less than a predetermined frequency, to each stationary grid to be used.

19. The periodic-pattern suppression unit as set forth in claim 12, wherein

said image signal transforming means obtains said plurality of transformed image signals by applying one-dimensional wavelet transformation to said original image signal in the grid length direction of said stationary grid by the use of a predetermined band splitting filter; and

said stationary grid-component suppressing means further applies a process of reducing a component less than a predetermined frequency and then performs inverse wavelet transformation, with respect to a low frequency image signal of said transformed image signals which contains a spatial frequency component corresponding to the grid array frequency of said stationary grid.

20. ~~The~~ periodic-pattern suppression unit ~~as set~~ forth in claim 19, wherein

said image signal transforming means applies said one-dimensional wavelet transformation in the grid length direction of each stationary grid to be used; and

said stationary grid-component suppressing means applies said ~~reducing process and~~ said inverse wavelet ~~transformation~~ to each said stationary grid ~~to~~ be used.